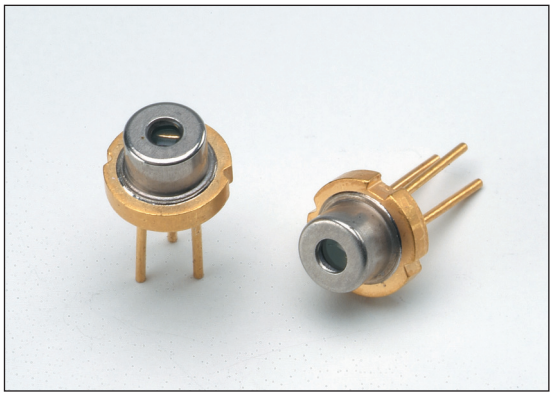
HAMAMATSU

PHOTON IS OUR BUSINESS

3 Stack Pulsed Laser Diode L11854-307-05

■ FEATURES

- Radiant peak output power: ≧21 W
- Peak emission wavelength: 905 nm
- Emitting area size: 70 μm × 10 μm



■ APPLICATIONS

- Laser range finder
- Security
- Measuring instruments

■ ABSOLUTE MAXIMUM RATINGS ($T_{op(C)}$ = 25 °C)

Parameter	Symbol	Value	Unit
Forward current	I_{fp}	10	A
Reverse voltage	V_r	6	V
Pulse duration	t_w	100	ns
Duty ratio	DR	0.075	%
Operating Temperature	$T_{op(c)}$	-40 to +85	°C
Storage temperature	T_{stg}	-40 to +100	°C

■ ELECTRICAL AND OPTICAL CHARACTERISTICS ($T_{op(C)}$ = 25 °C)

Parameter		Symbol	Conditions	Value			Unit
				Min.	Typ.	Max.	
Radiant peak output power		Φ_{ep}	I_{fp} = 7 A	17	21	—	W
Peak emission wavelength		λ_p		895	905	915	nm
Forward voltage		V_{op}		—	11	14	V
Spectral radiation half bandwidth		$\Delta\lambda$		—	6	10	nm
Rise time		t_r		—	—	2	ns
Beam spread angle	Parallel	$\theta_{//}$	I_{fp} = 7 A	7	11	15	degree
	Vertical	$\theta_{\perp}$	FWHM	18	23	28	degree
Emitting area		I_{th}	—	—	0.4	1	A
Lasing threshold current		—	Value at designing	—	70 × 10	—	μm × μm

Note: General operating condition: Pulse Width t_w = 50 ns, Repetition frequency f_r = 1 kHz

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Figure 1: Radiant output power vs. Forward current (typ.)

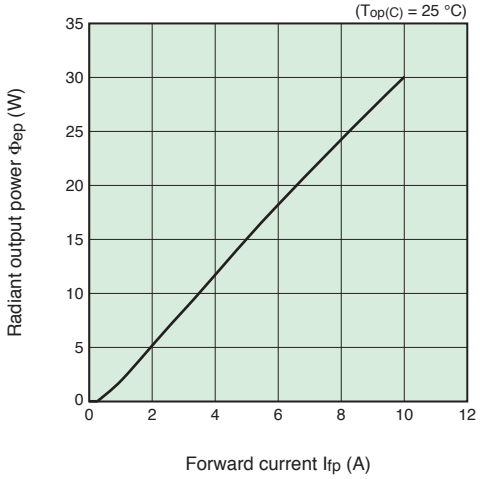


Figure 2: Typical emission spectrum

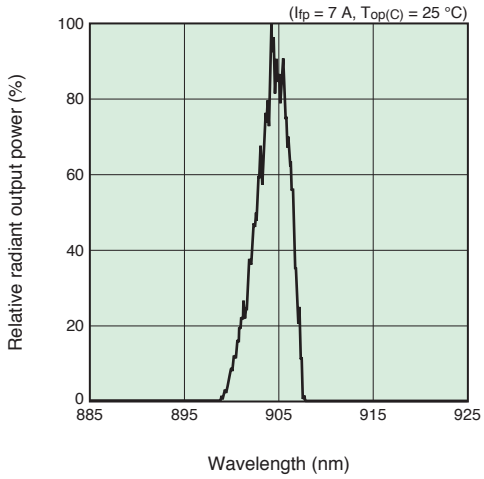


Figure 3: Directivity (typ.)

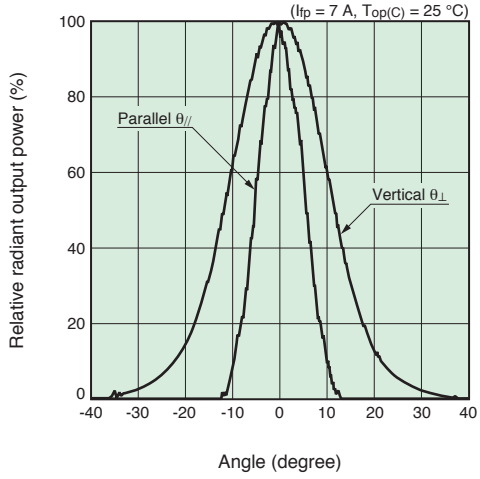
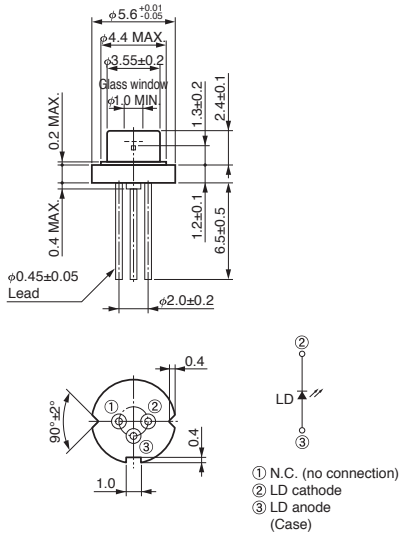


Figure 4: Dimensional outline (unit: mm)



Handling Precautions for L11854-307-05

1. Precautions for handling

The LD (laser diode) may be damaged or its performance may deteriorate due to such factors as electrostatic discharge from the human body, surge voltages from measurement equipment, leakage voltages from soldering irons, and packing materials. As a countermeasure against static electricity, the device, operator, work place and measuring jigs must all be set at the same electric potential. In using LD, observe the following precautions:

∑To protect the device from static electricity charges which accumulate on the operator or the operator's clothes, use a wrist strap etc. to ground the operator's body via a high impedance resistor (1 MΩ).

∑A semiconductive sheet should be laid on both the work table and the floor in the work area. When soldering, use an electrically grounded soldering iron with an isolation resistance of more than 10 MΩ.

∑For containers for transportation and packing, use of antistatic material (material that minimizes the generation of static change when rubbed against or separated from itself or other similar materials).

2. Precautions for mounting

(1)Lead forming

To form the leads, hold the base of the leads securely and bend them so that no force is applied to the package. Lead forming should be done before soldering.

(2)Cutting off the leads

If leads are out when still at a high temperature, this may cause an electrical discontinuity. Always cut off the leads when they are at room temperature. Never cut off the leads immediately after they are soldered.

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